

CLAIMS

1. A support system for at least one water drivable turbine (1) when in operation is immersed in a column of flowing water, characterised by a deck or raft (3) for supporting said at least one turbine when immersed, the deck or raft having an inherent buoyancy whereby the deck or raft is adapted for flotation when it is desired to raise the associated turbine or turbines above water level.
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2. A support system for a least one water drivable turbine (1) that when in operation is immersed in a column of flowing water, characterised in that the system includes a deck or raft (3) for supporting said at least one turbine when immersed, the deck or raft (3) having an inherent buoyancy which is such as to enable the deck or raft (3) to rise through the column of water upon reduction of the buoyancy, the arrangement being such that the associated turbine or turbines (1) can be raised above the surface of said column.
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3. A support system as claimed in claim 1 or 2, and characterised in that the support system is characterised in that the deck or raft (3) has a rectangular cross section in a horizontal plane.
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4. A support system as claimed in claim 1, 2 or 3, and characterised in that the deck or raft (3) has a planar smooth surface of approximately rectangular form with rounded corners or slightly curved edges plan form when viewed from directly above.
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5. A support system as claimed in any one of claims 1 to 4, and characterised in that the rectangular deck or raft (3) is of such construction as to be free from undesired flexural movements the arrangement.

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6. A support system as claimed in any one of the preceding claims, and characterised in that the upper surface of the deck, raft (3) exhibits an even and smooth surface immediately below the turbine or a row of turbines (1) mounted thereupon, the arrangement being such that the presence of the deck or raft upper surface serves to enhance the evenness of water flow over the surface thereof as compared with the flow over the generally rough and uneven surface of natural river or sea beds.

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7. A support system as claimed in any one of the preceding claims, and characterised in that the deck or raft is pivotally connected to anchoring means (6) set into the river or sea bed by way of struts (5) connected one to each opposite end of the deck or raft (3), the length of the struts (5) being such as to enable the deck or raft to be displaceable between a lowered position sufficient to immerse the turbine(s) (1) and raised position in which the turbine(s) is/are above water level.

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15 8. A support system as claimed in claim 7, and characterised in that the deck or (93) is arranged to rest at each said end thereof upon a support (4) upstanding from the river or sea bed (SB), the arrangement being such that the deck or raft (3) when immersed is set to an optimum position above a river or sea bed (SB).

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9. A support system as claimed in claim 7 or 8, and characterised in that the supports (4) are adapted to locate with a complementary location means (9) provided at the underside of the deck or raft when the latter is in its immersed position.

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10. A support system as claimed in claim 7, 8 or 9, and characterised in that the anchor points (6) for the struts (5) comprise piles or ground anchors positionally set into the river or sea bed.

11. A support system as claimed in claim 7, 8, 9 or 10, and characterised in that the pivotal connections (7,8) associated with the struts are such as to facilitate articulation of the associated struts (5) in such manner that the struts (5) are rotatable through a vertically disposed arc relative to the river or sea bed (SB)
- 5 12. A support system as claimed in any one of claims 7 to 11, and characterised in that the struts when the deck or raft is in its lowered position are arranged to be horizontal in the direction of the water flows with respect to the turbines when operating, the arrangement being such as counteract thrust forces arising from said water flows
- 10 13. A support system as claimed in any one of claims 7 to 12, and characterised in that the deck or platform is of streamlined cross-section and has a convex upper surface and a flat, concave or convex lower surface, the arrangement being such as to increase the mean water flow velocity through the turbine rotors, in such manner as to improve their power output.
- 15 14. A support system as claimed in claim any one of claims 7 to 13, and characterised in that the profiling of the deck or raft is such as to reduce water flow velocity shear in such manner as to reduce/offset turbulent flow through the turbine rotors, to enhance efficiency of turbine energy capture and to reduce fatigue loads on the turbine rotors.
- 20 15. A support system as claimed in any one of claims 7 to 14, and characterised in that the supports ((4) are arranged to be height ways adjustable whereby the height of the immersed deck or raft (3) can be adjusted to accommodate sea bed conditions.
- 25 16. A support system as claimed in any one of claims 7 to 15, and characterised in that where two or more supports (4) are provided means are provided for enabling adjustability of the support height to enabling levelling the deck or raft

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(3) as to accommodate unevenness in the sea bed level when two or more supports are utilised to support the deck or raft (3)

17. A support system as claimed in any one of the preceding claims 7 to 16, and characterised in that claim, and characterised in that the support (12) for the immersed deck or raft (3) extends across the full width of the deck or raft (3), the arrangement being such that no significant passage is provided for water to pass beneath the deck or raft (3) whereby substantially all of the water flowing towards the deck or raft is caused to travel over the deck or raft thereby to enhance the mean velocity of the water passing through the turbine(s) (1)

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10 18 A support system as claimed in claim 15, and characterised in that the support (12) is weightwise loaded so as to enhance its stability.

19. A support system as claimed in any one of the preceding claims, and characterised in that the deck or raft (3) is arranged to have neutral buoyancy, the arrangement being such as to facilitate the raising and lowering thereof relative to the sea bed (SB)

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